نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۲۴ ..... کلاس .....

۱

الف)

$\min \begin{cases} x_s = \frac{-b}{2a} = \frac{4}{4} = 1 \\ y_s = 2(1) - 4(1) + 1 = -1 \end{cases}$

ب)

$\max \begin{cases} x_s = \frac{-3}{-2} = \frac{3}{2} \\ y_s = \frac{-\Delta}{4a} = \frac{-31}{8} \end{cases}$

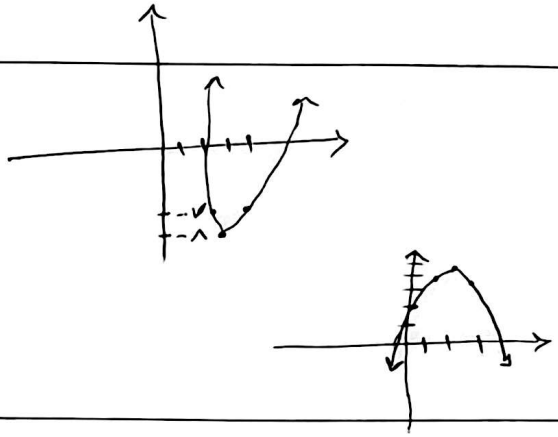
۲

$\min \begin{cases} x_s = \frac{6}{2} = 3 \\ y_s = -8 \end{cases}$

x	2	3	4
y	-7	-8	-7

$\max \begin{cases} x_s = \frac{-4}{-2} = 2 \\ y_s = 5 \end{cases}$

x	1	2	3
y	4	5	4



۳

$x^2 - (\alpha+\beta)x + \alpha\beta = 0$

$x^2 - x - 2 = 0$

$4x^3 + kx^2 - 9x - 2 = (x^2 - x - 2)(4x + a) = 4x^3 + ax^2 - 4x^2 - ax - 8x - 2a$

$= 4x^3 + (a-4)x^2 + (-a-8)x - 2a$

$a - 4 = k$

$-a - 8 = -9 \quad a = 1$

$K = a - 4 = 1 - 4 = -3$

۴

$\alpha^2 - \beta^2 = 1 = S^2 - 4P = (3m)^2 - 4(-m) = 1 \quad 9m^2 + 4m = 1$

$9m^2 + 4m - 1 = 0$

$|\alpha - \beta| = \frac{\sqrt{\Delta}}{|a|} = \sqrt{9m^2 - 4m} = 1$

$m = \frac{-4 \pm \sqrt{52}}{18} \quad \frac{-2 \pm \sqrt{13}}{9} \quad \alpha\beta = \frac{-m}{2} = -\frac{1}{4} \times \frac{2 \pm \sqrt{13}}{2}$

$\frac{-2 + \sqrt{13}}{18}$ و $\frac{-2 - \sqrt{13}}{18}$ $\leftarrow$ $-\frac{2 \pm \sqrt{13}}{8}$

۵

$\lambda = 1 \quad x = \frac{c}{a} = \frac{m}{2}$ $\xrightarrow{\text{محور } x}$ $(1, 0) \quad (\frac{m}{2}, 0)$

$y = 2x^2 - (m+2)x + m \xrightarrow{x=0} y = m \quad (0, m)$

$S = \frac{1}{2} \left|\frac{m}{2} - 1\right| |m| = \frac{1}{4} |m(\frac{m}{2} - 1)| = \frac{3}{2} \Rightarrow |m(\frac{m}{2} - 1)| = 3 \Rightarrow$

$|m(m-2)| = 3$

$y = x^2 - mx + 1 \rightarrow x = -\frac{-m}{2}, \frac{m}{2} \rightarrow m = -1 \rightarrow \frac{-1}{2}$

$\frac{-1}{2}$

$a>0$ $x_s = \frac{-3}{2a}$

$y_s = a\left(\frac{9}{4a^2}\right) + 3\left(\frac{-3}{2a}\right) + a = \frac{9}{4a} - \frac{9}{2a} + a = \frac{-9}{4a} + a$

$a - \frac{9}{4a} = \frac{7}{8}$ $8a^2 - 18 = 7a$ $8a^2 - 7a - 18 = 0$ $<$ $a = 2$ ✓ $a>0$ ، $a = -\frac{9}{8}$ ✗

$(a = 2)$ ← ۱ مقدار

۷

(1) $n, n+2 \to 2n+2 = a+1$ $a = 2n+1$ ضرب $= a$

(2) $m, m+2 \to 2m+2 = 3a+1$ $2m = 3a-1$

$n(n+2) = 2n+1$ $n^2 + 2n = 2n+1$ $n^2 = 1$ $n = \pm 1$ (غیرمجاز) $\to a = 3$

$3a+1 = 10 < \frac{4}{6}$ و $24 \to 24 - 3 = 21$

معادله $1 \times 3 = 3$ و 3

۸

$x_s = \frac{-B}{2A}$

$y = 2bx^2 - bx - 1$ ~~$\left(\frac{1}{4}, \frac{a+8}{4}\right)$~~

$y = -ax^2 + ax + 2$ ~~$\left(\frac{1}{2}, -\frac{b+8}{8}\right)$~~

$x = \frac{-a}{-2a} = \frac{1}{2}$

$y = -a\left(\frac{1}{2}\right)^2 + a\left(\frac{1}{2}\right) + 2 = \frac{-a}{4} + \frac{a}{2} + 2 = \frac{a+8}{4}$

$x = \frac{-(-b)}{2(2b)} = \frac{1}{4}$

$y = 2b\left(\frac{1}{4}\right)^2 - b\left(\frac{1}{4}\right) - 1 = -\frac{b+8}{8}$

$\frac{a+8}{4} = \frac{b}{8} - \frac{b}{4} - 1$ (خط خورده) $a+8 = -4$ $a = -12$

$\frac{12}{9} - \frac{12}{4} + 2 = \frac{3}{4} - 1 = -\frac{1}{4}$

$\frac{b+8}{8} = \frac{1}{4} \longrightarrow \frac{b+8}{2} = 1$

$b + 8 = 2$ $b = -6$

$b - a = -6 - (-12) = 6$

۹

$\alpha + \beta = \frac{-4}{25\alpha}$ $\alpha\beta = \frac{\beta}{25\alpha}$

$25\alpha(\alpha\beta) = \beta$

$25\alpha^2 = 1$ $a = \pm\frac{1}{5}$ $\beta > \alpha$: $\alpha = \frac{1}{5} \to \frac{1}{5} + \beta = -\frac{4}{5} \to \beta = -1 \Rightarrow \beta < \alpha$ ✗

$\alpha = -\frac{1}{5} \to -\frac{1}{5} + \beta = \frac{4}{5} \to \beta = 1 \Rightarrow \beta > \alpha$ ✓

$x_s = \frac{-4}{2(25\alpha)} \to \alpha = -\frac{1}{5}$

$a = 25\alpha = -5$ $a < 0$

$x_s = \frac{4}{10} = \frac{2}{5} > 0$ $y_s > 0$ $\Rightarrow$ ناحیه اول

-۱۰

ریشه‌ها m, n ، طبیعی $a, b \to ab \geq 1$

$m + n = a^2 + b^2 - 12$ $a^2 + b^2 = (a+b)^2 - 2ab$ $m + n \leq t^2 - 2 - 12$ $(m+n)^2 \geq 4mn$

$mn = a + b - 1$ $t = a + b$ $mn = t - 1$ $m + n \leq t^2 - 14$

$m + n = t^2 - 2ab - 12$

$(t^2 - 2ab - 12)^2 \geq 4(t-1)$

$ab = 1$

$a = b = 1 \to$ جمع ، ضرب $t - 1 = 12$ $\Rightarrow m = 3$ $n = 4$ $3 \times 4 = 12$ $t = 13$

$a + b = 13 \Rightarrow mn = 12 < \frac{3}{4}$ ✓ $\longrightarrow a + b = 13$

CS CamScanner